

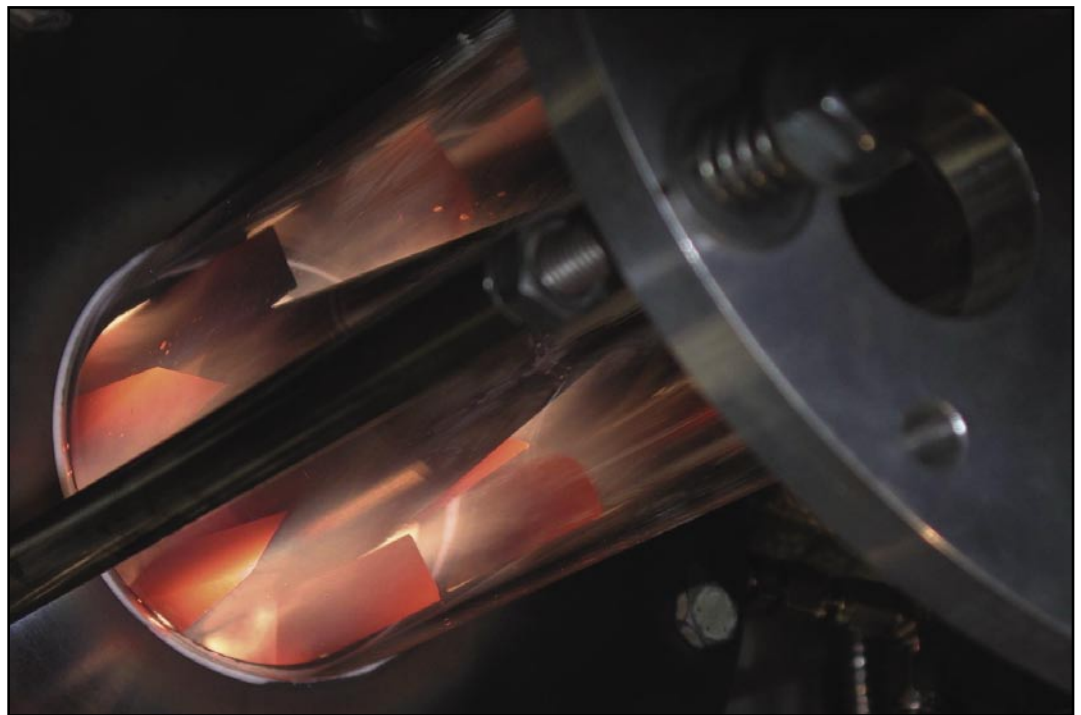


Air Force Research Laboratory|AFRL

Science and Technology for Tomorrow's Air and Space Force

Success Story

AFRL TESTING DEMONSTRATES FEASIBLE GAS TURBINE ENGINE TECHNOLOGY



AFRL is conducting research on the ultracompact combustor (UCC), an essential part of an evolving technology to develop near-constant-temperature-cycle gas turbine engines. UCC technology can significantly reduce engine weight and size while providing large amounts of power.



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Accomplishment

High-pressure UCC tests conducted in AFRL's High-Pressure Combustor Research Facility demonstrated the viability of using UCC technology in advanced main combustor and interturbine burner systems. The UCC design integrates compressor and turbine features that will enable a shorter and less complex gas turbine engine. Experimental results from UCC testing at elevated pressure indicated that the combustion system operates at 95%-99% efficiency over an increased operating range compared to conventional gas turbine combustion systems burning JP-8+100 fuels.

Background

AFRL conducts basic and applied research to enhance the technical capability of turbopropulsion systems. UCC design, development, and testing efforts are part of AFRL's interdisciplinary research plans to explore novel and innovative concepts critical to meeting future Air Force operational requirements. AFRL also has the objective to transfer new technology to other government and commercial agencies and thus maintains awareness regarding national and international gas turbine engine development organizations.

Propulsion
Emerging Technologies

Additional Information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTC, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (05-PR-03)